Puzzle 1 · The Crossword

Every answer is a word from this chapter.

Across

2. involuntary muscle found in the gut and blood vessels (6)
9. ability of a cell to regrow a whole organism (11)
13. type of involuntary striated muscle found only in the heart (7)
14. connects bone to bone at a joint (8)
15. a group of similar cells performing the same function (6)

Down

1. plant tissue that transports water upward (5)
3. connects muscle to bone (6)
4. actively dividing plant tissue at growing tips (8)
5. pores on a leaf surface for gas exchange (7)
6. tissue type that includes bone, blood and cartilage (10)
7. voluntary striated muscle attached to bones (8)
8. the basic cell of nervous tissue (6)
10. tissue that covers and lines body surfaces (10)
11. smooth, flexible connective tissue at joints (9)
12. plant tissue that transports food (6)

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Puzzle 2 · Word Search

16 terms are hiding in the grid — across, down, diagonally, and backwards.

T N E U R O N T H I O C G G M
T S Z P S K H Y O W E B F F E
G X H A H I T J P V T X S X U
H M C K I H O J P R J L A Y S
H E A L U T O S J H A L H L S
Z T R Z Q M M K C T C L O E I
O S T P L O S P E S N H B M T
D I I H F Q A L I G A M E N T
Y R L L Y J E U Z R C S V L G
W E A O Y K V C A R D I A C T
G M G E S L E N O D N E T D U
Q G E M Q I T U W L N F I E Q
O J F J T N I O J S E O N M T
A C B L O O D H P A H O D Q Y
P Y P S T O M A T A B E R E X

- ☐ CARTILAGE
- ☐ STOMATA
- ☐ TENDON
- ☐ BLOOD
- ☐ MERISTEM
- ☐ CARDIAC
- ☐ SMOOTH
- ☐ JOINT
- ☐ LIGAMENT
- ☐ PHLOEM
- ☐ TISSUE
- ☐ BONE
- ☐ SKELETAL
- ☐ NEURON
- ☐ XYLEM
- ☐ NODE

Solo: find all the words. Note your time.
Pairs: one partner finds across-and-down words, the other finds diagonals.
Hard mode: cover the word list. Find as many chapter terms as you can in 5 minutes.
Champion move: for every word you find, say what it means out loud.

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Puzzle 3 · Scrambled Terms

Every row is a chapter word with its letters shuffled. Unscramble it. The clue is your lifeline.

E T E I A L L P H I	*(covers and lines body surfaces)*	_____
L S C A R U A V	*(bundle carrying xylem and phloem together)*	_____
N O V R Y U T A L	*(movement you consciously control)*	_____
L T A I U Y N O V R N	*(movement you cannot consciously control)*	_____
D R A E E F I E T F I T E R D N	*(a mature cell that becomes meristematic again)*	_____
T V A E B L E R R	*(___ column — the backbone)*	_____
E A A R L T L	*(___ meristem — increases girth of stems and roots)*	_____
R E E P N A N T M	*(___ tissue — cells that have stopped dividing)*	_____

Beat the Bell: 60-second timer. Every unscrambled word inside the bell = 1 point; a word you can also define = 3 points.
Chain Scramble: In a circle, each student scrambles a chapter word for the person on their left. Miss it and you are out.

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Puzzle 4 · Odd One Out

Three belong together. One does not. Identify the odd one — then write why.

1. Xylem · Phloem · Meristem · Neuron — Because... _____
2. Skeletal · Smooth · Cardiac · Epithelial — Because... _____
3. Tendon · Ligament · Cartilage · Stomata — Because... _____
4. Apical · Lateral · Intercalary · Permanent — Because... _____
5. Bone · Blood · Cartilage · Nervous tissue — Because... _____
6. Voluntary · Skeletal · Striated · Cardiac — Because... _____

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Puzzle 5 · Chapter Scrabble

Build only terms from this chapter — no ordinary English words allowed.

SCORING

Each letter tile used : Its tile value	
Word is a term from this chapter :	× 2
Word is 8 letters or longer :	+ 10 bonus
You can state its meaning correctly :	+ 5
You can connect it to a real-life example :	+ 3
Word is not in this chapter (challenged and lost) :	– 5

How a Round Works

1. Player builds a word and lays it down.
2. Opponent may challenge within 10 seconds: “That is not in this chapter.” Open textbook. Wrong challenger loses 5 pts; caught builder loses 5 pts.
3. Builder states meaning for +5 bonus. Group votes on accuracy.

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Puzzle 6 · Who Am I? — Clue Cards

Fewer clues used = more points.

1. I carry water upward from root to leaf.
2. I am made of dead, hollow cells.
3. I am **xylem**.

1. I carry food from leaves to the rest of the plant.
2. I can transport both up and down.
3. I am **phloem**.

1. I am found only at growing tips.
2. My cells divide constantly.
3. I am **meristematic tissue**.

1. I cover and protect body surfaces.
2. Your skin is made of me.
3. I am **epithelial tissue**.

1. I connect muscle to bone.
2. I am tough and fibrous.
3. I am a **tendon**.

1. I connect bone to bone.
2. I stabilize your joints.
3. I am a **ligament**.

1. I am smooth, flexible connective tissue.
2. You find me at the ends of bones and in your nose.
3. I am **cartilage**.

1. I am the basic cell of the nervous system.
2. I carry electrical signals.
3. I am a **neuron**.

1. I am found only in the heart.
2. I am striated but involuntary.
3. I am **cardiac muscle**.

1. I line your gut and blood vessels.
2. I am involuntary and unstriated.
3. I am **smooth muscle**.

1. I let a single plant cell regenerate a whole plant.
2. I underlie the tissue-culture industry.
3. I am **totipotency**.

1. I am the pore on a leaf's surface.
2. I control gas exchange and water loss.
3. I am a **stoma**.

Scoring: guessed after clue ❶ = 5 points · after ❷ = 3 points · after ❸ = 1 point.

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Puzzle 7 · True or False Sprint

Stand up. True = stay standing. False = sit down. Last student standing wins.

1. Xylem transports food, phloem transports water. [☐ T / ☐ F]
2. Meristematic tissue is found only at growing tips. [☐ T / ☐ F]
3. Cardiac muscle is voluntary. [☐ T / ☐ F]
4. Cartilage is smoother and more flexible than bone. [☐ T / ☐ F]
5. Tendons connect bone to bone. [☐ T / ☐ F]
6. A tissue is a group of similar cells performing the same function. [☐ T / ☐ F]
7. Skeletal muscle is also called striated, voluntary muscle. [☐ T / ☐ F]
8. Stomata are found on the surface of bones. [☐ T / ☐ F]
9. Permanent tissue cells have generally stopped dividing. [☐ T / ☐ F]
10. Lateral meristem increases the length of a stem. [☐ T / ☐ F]
11. Neurons are the basic functional cells of nervous tissue. [☐ T / ☐ F]
12. Any mature plant cell can, in principle, be totipotent. [☐ T / ☐ F]
13. Smooth muscle is found in the walls of blood vessels. [☐ T / ☐ F]
14. Blood is classified as a type of connective tissue. [☐ T / ☐ F]

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Puzzle 8 · Bingo

Fill your 4x4 grid with any 16 words from the bank. Listen for the meaning, not the name!

Xylem

Phloem

Meristem

Epithelial

Cardiac

Skeletal

Smooth

Neuron

Vascular

Lateral

Totipotency

Stomata

Ligament

Apical

Cartilage

Lateral

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Puzzle 9 · Two Truths and a Lie

Circle the **lie** — and correct it in one line.

Set 1
(a) Xylem cells are living.
(b) Xylem transports water upward.
(c) Xylem is a complex plant tissue.

Lie: _____ Corrected: _____

Set 2
(a) Cardiac muscle is striated.
(b) Cardiac muscle is voluntary.
(c) Cardiac muscle is found only in the heart.

Lie: _____ Corrected: _____

Set 3
(a) Cartilage is more rigid than bone.
(b) Cartilage is found at the tip of your nose.
(c) Cartilage cushions joints.

Lie: _____ Corrected: _____

Set 4
(a) Meristematic cells divide continuously.
(b) Permanent tissue cells divide continuously.
(c) Apical meristem is found at root and shoot tips.

Lie: _____ Corrected: _____

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Puzzle 10 · The Escape Challenge

Collect all five digits to unlock the exit code.

GATE 1 — The Xylem Gate

Xylem cells are, at maturity: alive or dead?

Count the letters in your one-word answer.

[Digit: ☐]

GATE 2 — The Muscle Gate

How many main types of muscle tissue are there (skeletal, smooth, cardiac)? Use that number.

[Digit: ☐]

GATE 3 — The Meristem Gate

How many main types of meristem are named in this chapter (apical, lateral, intercalary)? Use that number.

[Digit: ☐]

GATE 4 — The Neuron Gate

Count the letters in NEURON.

[Digit: ☐]

GATE 5 — The Joint Gate

A ligament connects bone to bone; a tendon connects muscle to bone.

Count the letters in TENDON.

[Digit: ☐]

EXIT CODE: ☐☐☐☐

Teacher's note: Hide the gate cards around the classroom. Teams rotate every 4 minutes. First team to reach the door with the correct code escapes.

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